REMARKS/ARGUMENTS

Claims 1-29, 32 and 33 were pending in the present application. Claims 30-31 were cancelled from consideration. By virtue of this response, claims 2, 4, 11, 13, 20, 22, and 32 have been amended. Accordingly, claims 1-29, 32 and 33 are currently under consideration. Amendment and cancellation of certain claims is not to be construed as a dedication to the public of any of the subject matter of the claims as previously presented. No new matter has been added.

Discussion Regarding Anticipation Rejection Generally:

The Examiner contends that Major (USP 5,689,123) anticipates claims 1-5, 9-14, 18-23 and 29. Applicant respectfully traverses the rejection. Specifically, as discussed below, Applicant disagrees with the Examiner's assertion of inherency.

In making the anticipation rejection, the Examiner contends that the source materials in Major "inherently decompose on the surface of the substrate." It is well-established that, for a feature to be inherent, that feature must necessarily be present. Applicant respectfully contends that, not only is the feature of the source materials decomposing on the surface of the substrate not necessarily present, it is explicitly *not* present.

In support of this contention, Applicant first points the Examiner to col. 13, lines 22-25 of Major. There, Major discloses that "The group V sources can be provided to the chamber 215 via gases such as NH_3 or H_2NNH_2, PH_3 and AsH_3 that have been disassociated in a manner similar to that discussed under LP-MOCVD." This, in and of itself, clearly shows that Major discloses the LP-MOCVD source gases are disassociated.

Furthermore, as Applicant has previously contended, a feature of the claimed subject matter is that nitrogen source gas molecules are supplied to the surface of the semiconductor layer so that they decompose on the surface of the layer, without being previously decomposed. This is contrary to "prevailing wisdom" in the art. This feature is responsible for improving the amount of nitrogen in the crystal, improving crystallinity and light emission characteristics. This is described, for example, at page 14, lines 11-23 of Applicant's specification. In addition, Major does not

disclose or suggest the use of Al to promote decomposition and surface absorption of N source materials on a substrate.

Specific Discussion Regarding Dependent Claims 2, 11 and 20:

Claims 2, 11 and 20 have been amended to specify that the mix-crystal ratio of Al is 0.2 or less and 0.02 or more. Major fails to disclose or suggest this mix-crystal ratio of Al. This mix-crystal ratio clearly improves the efficiency of mix-crystallization of N, reducing the oscillation threshold current, as illustrated in Figures 2 and 9. This improvement is neither disclosed nor suggested by Major. Finally, the Examiner has indicated in any event (and Applicant appreciates) that it is not obvious to optimize the mix-crystal ratio of Al.

Specific Discussion Regarding Dependent Claims 4, 13 and 22:

Major explicitly discloses that PH_3 and/or AsH_3 are supplied together with NH_3 to catalyze an NH_3 disassociation reaction. See, for example, col. 12, lines 14-26 of Major. Clearly, then, Major teaches away from supplying ammonia (NH_3 directly to the substrate without previous decomposition. Accordingly, it is respectfully submitted that claims 4, 13 and 22, which recite that the nitrogen source material is NH_3, are patentable over the disclosure of Major.

CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conversation would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the unlikely event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. 299002052200. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Dated: March 9, 2004

Respectfully submitted,

By_____

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